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ANNUAL FOREST INSECT STATUS REPORT
REGION 1
1937

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This report has been prepared for the purpose of meeting a demand for a summary depicting forest insect conditions within the Northern Rocky Mountain region during the 1937 season. In compiling this report all available information, including the annual insect status reports received from all ranger districts of Region 1 of the Forest Service and adjacent National Parks as well as data collected by the Forest Insect Laboratory at Coeur d'Alene, Idaho, have been utilized. As the data submitted are of a necessity in rather meager detail, additional information concerning any of the situations mentioned will be gladly furnished to those who are interested.

The use of the new form "Report on Insect Conditions" (96 R-1, revised March 1936) has materially increased the value of the data submitted. The reporting officer's remarks describing the situation under consideration permit a clearer visualization of the character of the infestation.

It is desired to again stress the importance of the so-called "normal" or "endemic" infestation, and to warn against the danger of a hasty decision as to its status. Adequate examinations often prove such innocent-appearing situations to be more serious than anticipated. One must not forget that all infestations are potential epidemics, and that under proper conditions the change can occur so quickly that serious situations may exist before the danger is recognized. An accurate record of all situations is essential, as it is from these data that the need for more detailed examinations and surveys leading to the institution of control is determined. To emphasize this point the writer has secured permission from Supervisor Phillips to quote from his letter to the Regional Forester transmitting the ranger reports from the Nezperce National Forest, as illustrating the importance of these surveys and the need for accurate information:

"I have long felt that the insect problem is deserving of considerably more time and study than it is now given. The loss of timber due to this cause during the past ten years on the Nezperce Forest has been tremendous. Millions of feet of merchantable ponderosa pine has been destroyed and probably at least a billion feet of lodgepole pine and protection forest type stands has been killed. Fire hazard has been tremendously increased and in a course of a few years travel through some of our open lodgepole will be seriously impeded by fallen timber.

"I am impressed by the fact that we are not giving the situation the consideration it deserves. It is true that field men travelling around over the Forest are instructed to look for insect activity and do observe red topped trees, saw dust and pitch tubes on the bark of apparently green trees, flying insects, etc., and at the end of the season sit down and compile a report that may be of some value although I am inclined to seriously doubt it. The observations and reports are as a general rule perfunctory and cut and dried, submitted as a means to an end in complying with a requirement. Training in ability to observe, knowing what to look for and follow out any systematic plan of study of the project is pretty generally lacking. It is probably after all analogous to the old story of not being able to see the forest for the trees, and although we are spending thousands of dollars annually in fire prevention presuppression and fire fighting the fact remains that the loss from insects over any ten year period has been many times greater than from fire."

TABLE I
SUMMARY OF FOREST RANGER REPORTS
REGION 1 ONLY

	<u>1935</u>	<u>1936</u>	<u>1937</u>
Number of forests reporting*	16	16	16
Number of ranger districts reporting	91	84	94
Number of insect infestations reported	183	134	177
Number of reports depicting no infestations	9	14	20
Number of secondary insects reported	30	18	25
Number of Dendroctonus reports	144	107	123
Number of fir engraver beetle reports	1	1	7
Number of spruce budworm reports	7	5	5
Number of hemlock looper reports	0	0	17
Increasing infestations	43	6	31
Decreasing infestations	111	93	47
Normal infestations	20	13	51
Infestations reported as no longer existing	8	9	23
Status of infestation uncertain		13	0

* As the Coeur d'Alene Forest was covered by an extensive survey, no ranger reports were submitted.

TABLE II
REPORT OF MISCELLANEOUS SECONDARY INSECTS
(I--Increasing, D--Decreasing, N--Normal)

	<u>1936</u>	<u>1937</u>
Cabinet National Forest -		
Spruce Gall Aphis (<u>Adelges cooleyi</u>)	D	N
Douglas Fir Cone Moth (<u>Barbara colfaxiana colfaxiana</u>)	D	N
Pine Butterfly (<u>Neophasia menapia</u>)	D	N
White Pine Aphis (<u>Pineus pinifoliae</u>)	D	D
Pine Leaf Scale (<u>Chionaspis pinifoliae</u>)	N	D
Spider Mite - White Pine (<u>Oligonychus amer.</u>)	D	D
Oregon Engraver (<u>Ips oregoni</u>)	D	O
Ips - White Pine (<u>Ips sp.</u>)	D	O
Aphis - Ponderosa Pine, White Pine	D	D
Aphis - Lodgepole, Ponderosa	D	D
Flathead National Forest -		
Larch sawfly (<u>Nematus erichsonii</u>)	D	D
" " " "	D	D
Aphis - White Pine	D	D
Custer National Forest -		
Aspen Borer	D	
Tip Moth (<u>Rhyacionia sp.?</u>) (4 reports)	I	D
Caterpillars (Ash.)	?	D
Grasshoppers (3 reports)	?	D (1)-N (2)
Spruce Budworm	N	O
Mormon Crickets (3 reports)	O	I (2)-D (1)
Bitterroot National Forest -		
<u>Ips sp.</u>	O	N
Tussock Moth (?)	O	I

TABLE III
SUMMARY OF INSECT INFESTATIONS REPORTED
(NATIONAL FORESTS)

Insect	: Year	: Inc.	: Dec.	: Normal	: Dropped	: Total
Mountain Pine Beetle <u>D. monticolae</u> Hopk.	: 1937	: 7	: 38	: 33	: 18	: 96
	: 1936	: 5	: 65	: 11	: 8	: 89
	: 1935	: 24	: 79	: 8	: 6	: 117
	: 1934	: 17	: 52	: 8	: 0	: 77
	: 1933	: 33	: 45	: 17	: 0	: 95
	: 1932	: 64	: 20	: 12	: 0	: 96
	: 1931	: 51	: 27	: 14	: 0	: 92
	: 1930	: 60	: 24	: 14	: 0	: 98
	: 1929	: 45	: 14	: 23	: 0	: 82
	: 1928	: 33	: 13	: 10	: 0	: 56
Western Pine Beetle <u>D. brevicomis</u> Lec.	: 1937	: 0	: 2	: 3	: 3	: 8
	: 1936	: 0	: 3	: 3	: 0	: 6
	: 1935	: 1	: 6	: 1	: 1	: 9
	: 1934	: 1	: 5	: 4	: 0	: 10
	: 1933	: 5	: 2	: 1	: 0	: 8
	: 1932	: 2	: 2	: 0	: 0	: 4
	: 1931	: 2	: 1	: 1	: 0	: 4
	: 1930	: 4	: 1	: 0	: 0	: 5
	: 1929	: 0	: 3	: 4	: 0	: 7
	: 1928	: 5	: 4	: 2	: 0	: 11
Douglas Fir Beetle <u>D. pseudotsugae</u> Hopk.	: 1937	: 2	: 4	: 9	: 1	: 16
	: 1936	: 0	: 9	: 3	: 0	: 12
	: 1935	: 2	: 10	: 3	: 0	: 15
	: 1934	: 3	: 8	: 3	: 0	: 14
	: 1933	: 5	: 4	: 5	: 0	: 14
	: 1932	: 13	: 1	: 5	: 0	: 19
	: 1931	: 2	: 5	: 1	: 0	: 8
	: 1930	: 4	: 2	: 4	: 0	: 10
	: 1929	: 2	: 1	: 2	: 0	: 5
	: 1928	: 5	: 4	: 2	: 0	: 11
True Fir Beetle <u>Scolytus ventralis</u> Lec.	: 1937	: 5	: 2	: 0	: 0	: 7
	: 1936	: 0	: 1	: 0	: 0	: 1
	: 1935	: 1	: 0	: 0	: 0	: 1
	: 1934	: 0	: 1	: 1	: 0	: 2
	: 1933	: 4	: 0	: 0	: 0	: 4
	: 1932	: 5	: 0	: 0	: 0	: 5
	: 1931	: 0	: 0	: 1	: 0	: 1
	: 1930	: 2	: 0	: 0	: 0	: 2
	: 1929	: 1	: 0	: 0	: 0	: 1
	: 1928	: 0	: 0	: 1	: 0	: 1

TABLE III (Cont.)

Insect	Year	Inc.	Dec.	Normal	Dropped	Total
Engelmann Spruce Beetle	1937	1	2	1	1	5
Dendroctonus engelmanni	1936	0	0	0	0	0
Looper	1937	15	0	2	0	17
Ellopiia fiscellaria	1936	0	0	0	0	0
lugubrosa						
	1937	0	1	3	1	5
	1936	0	2	2	1	5
	1935	1	3	2	1	7
	1934	3	4	0	0	7
	1933	3	4	4	0	11
Spruce Budworm	1932	3	7	1	0	11
Cacoecia fumiferana	1931	1	7	1	0	9
Clem.	1930	6	5	6	0	17
	1929	4	9	3	0	16
	1928	11	12	4	0	27

The outstanding changes in the above tabulation for the 1937 season are the slight increase in the number of mountain pine beetle infestations and the addition of the Engelmann spruce beetle and hemlock looper to the list of destructive forest insects.

MOUNTAIN PINE BEETLE INFESTATIONS WHITE PINE

The following table presents a statistical comparison of the number of mountain pine beetle infestations in white pine for the seasons of 1936 and 1937:

TABLE IV

Forest	No. of reports		Number of infestations							
			Increasing		Decreasing		Normal		Stopped	
	1936-1937		1936-1937		1936-1937		1936-1937		1936-1937	
Cabinet	4	2	0	0	4	0	0	1	0	1
Clearwater	1	4	0	0	1	0	0	1	0	3
Flathead	0	1	0	0	0	1	0	0	0	0
Nezperce	0	1	0	0	0	0	0	1	0	0
Pend Oreille)	4	3	2	1	2	2	0	0	0	0
Kaniksu)										
Kootenai	2	4	0	0	2	2	0	1	0	1
St. Joe	2	4	0	1	0	2	2	1	0	0
Total	13	19	2	2	9	7	2	5	0	5

Though an increase in the total number of infestations is shown in the preceding tabulation, it rests in the number of outbreaks recorded as normal or stopped, which in several instances had not been previously reported. These data do not give a complete description of the mountain pine beetle infestations in white pine, as several rather serious situations on the Coeur d'Alene Forest are not included in the preceding tabulation.

The Cabinet Forest reports normal conditions in the Twelvemile and Cole Creek drainages, both of which were included in last year's summation. Decreasing infestations in the Elk Creek and Mullan Gulch areas recorded in 1936 were not included in this year's reports.

In 1936 only one report was received from the Clearwater Forest, which however included practically the entire Canyon ranger district. Twelve units were included in this one report, six of which had been previously recorded in 1935. Reports of four normal situations were received in 1937, which covered the Canyon, Kelly Creek, Lochsa, and Bungalow ranger districts. Though three of these reports recorded no new attacks, a few spots of 1937 infestation were listed in the Canyon ranger district. It was somewhat difficult to visualize the existing situation within these areas, as both lodgepole pine and white pine were listed as hosts.

The Flathead Forest reports one infestation of this insect on the south fork of the Flathead between Murray and Sullivan Creeks, which is not considered as serious. This situation has been reported for a number of years.

Nezperce National Forest. One normal infestation reported from the Middle Fork ranger district.

Three reports were received from the Kaniksu Forest in 1937 as compared to four in 1936. In the Upper Priest and Beaver areas increasing infestations are listed, with a near normal situation in the Sullivan Creek drainage.

Four reports were received from the Kootenai Forest in 1937 as compared to two in 1936. None of these situations are considered as serious, though an effort is being made to have the infested trees removed by logging.

There are four situations on the St. Joe Forest, with only one (St. Joe River from Skookum Creek to Fishhook Creek) listed as increasing. The other three were not considered as being serious.

TABLE V
MOUNTAIN PINE BEETLE IN LODGEPOLE PINE

Forest	: No. of		: Number of infestations							
	: reports		: Increasing:		Decreasing:		Normal		: Stopped	
	: 1936-1937		: 1936-1937		: 1936-1937		: 1936-1937		: 1936-1937	
Absaroka	: 0	2	: 0	1	: 0	0	: 0	1	: 0	0
Beaverhead	: 7	7	: 1	0	: 6	4	: 0	2	: 0	1
Bitterroot	: 4	5	: 0	0	: 3	3	: 0	2	: 1	0
Cabinet	: 5	4	: 0	0	: 5	2	: 0	1	: 0	1
Clearwater	: 1	3	: 0	0	: 1	0	: 0	2	: 0	1
Deerlodge	: 6	7	: 0	0	: 6	1	: 0	3	: 0	3
Flathead	: 2	3	: 0	0	: 1	1	: 1	2	: 0	0
Gallatin	: 5	4	: 0	0	: 5	1	: 0	2	: 0	1
Helena	: 4	3	: 0	0	: 4	2	: 0	1	: 0	0
Kootenai	: 1	1	: 0	0	: 1	0	: 0	0	: 0	1
Lolo	: 6	5	: 0	0	: 3	2	: 0	3	: 3	0
Lewis and Clark	: 0	1	: 0	1	: 0	0	: 0	0	: 0	0
Nezperce	: 3	4	: 0	0	: 2	2	: 1	0	: 0	2
St. Joe	: 2	2	: 0	1	: 0	0	: 0	1	: 2	0
Total	: 46	51	: 1	3	: 37	18	: 2	20	: 6	10

The preceding tabulation again indicates a reduction in the number and severity of mountain pine beetle infestations in lodgepole pine of the region. In such areas as the Beaverhead, Bitterroot, Clearwater, Nezperce, and perhaps others, where in the past few years heavy losses have occurred, the infestation is decreasing in severity, primarily because of a lack of host material.

The Absaroka reports an increasing infestation as having spread from a severe whitebark pine infestation to adjacent lodgepole pine stands. On the Beaverhead all infestations are listed as decreasing, which in most areas is due to a shortage of host material. On this forest a very large percentage of the trees above 8 inches d.b.h. have been killed during the past ten years. The same conditions exist on the Bitterroot, where the devastation in lodgepole has been equally severe. None of the four infestations reported from the Cabinet are considered as being above a normal condition. Though during the past few years serious losses of lodgepole have occurred on the Clearwater, all infestations are now considered as having decreased to a normal status. The Deerlodge Forest reports seven infested areas with considerable loss of timber still occurring, though the situations are considered as decreasing in severity. Situations on the Flathead and Gallatin are not considered as serious. Of the three normal infestations reported from the Helena one is still spreading, with scattered small groups and single trees occurring in a new area. Though severe losses of lodgepole have occurred on the Kootenai, the one infestation reported is now considered as a normal situation. No aggressive outbreaks listed on the Lolo or Lewis and Clark. Though the lodgepole pine stands of the Nezperce have suffered

very heavy losses during the past few years, no serious situations exist at this time. Previous outbreaks on the St. Joe are now considered as normal.

It has been estimated that within the lodgepole pine forests of Idaho and Montana there have been at least 7,020,710 M.B.F. killed by the mountain pine beetle during the past ten years. This destructive outbreak seems to have run its course, and in only a relatively few areas are serious losses occurring.

TABLE VI
MOUNTAIN PINE BEETLE INFESTATION
WHITEBARK PINE AND PONDEROSA PINE

Forest	Whitebark pine									
	Increasing 1936-1937		Decreasing 1936-1937		Normal 1936-1937		Stopped 1936-1937			
Absaroka	0	2	1	0	1	0	0	0	0	0
Beaverhead	0	0	2	1	0	1	0	0	0	0
Bitterroot	0	0	1	2	1	1	1	0	0	0
Clearwater	0	0	0	0	0	1	0	0	1	1
Deerlodge	0	0	2	1	0	0	0	0	1	1
Gallatin	0	0	3	1	0	2	0	0	0	0
Lolo	0	0	0	0	0	0	0	0	0	0
Nezperce	0	0	1	1	0	0	0	0	0	0
St. Joe	0	0	0	0	0	0	0	0	0	0
Total	0	2	10	6	2	5	1	2		

Ponderosa pine										
Bitterroot	1	0	2	3	0	3	1	0		
Cabinet	0	0	1	1	0	0	0	0		
Custer	0	0	0	1	0	0	0	0		
Deerlodge	0	0	0	0	0	0	0	0		
Lolo	0	0	0	0	0	0	0	0		
St. Joe	0	0	1	1	0	0	0	0		
Nezperce	0	0	0	0	0	0	0	0		
Total	1	0	4	6	0	3	1	0		

Infestations of the mountain pine beetle exist in nearly all whitebark pine areas. The most serious situation is reported from the Absaroka, where it is estimated that a greater part of the trees will be killed during the next few years.

During severe epidemics of the mountain pine beetle in lodgepole pine there is always some loss in any associated or adjacent stand of ponderosa pine. It would seem that these losses, which vary in severity, cease with the cessation of the outbreak in lodgepole. As the lodgepole situations are returning to a normal condition throughout the Northern Rocky Mountains, the losses in ponderosa pine should subside.

TABLE VII
WESTERN PINE BEETLE INFESTATION
PONDEROSA PINE

Forest	: No. of		: Number of infestations							
	: reports		: Increasing		: Decreasing		: Normal		: Stopped	
	: 1936-1937		: 1936-1937		: 1936-1937		: 1936-1937		: 1936-1937	
Cabinet	: 1	1	: 1	0	: 0	0	: 0	0	: 0	1
Clearwater	: 0	1	: 0	0	: 0	0	: 0	0	: 0	1
Kootenai	: 1	1	: 0	0	: 0	0	: 1	1	: 0	0
Lewis and Clark	: 1	1	: 0	0	: 0	0	: 1	0	: 0	1
Lolo	: 0	2	: 0	0	: 0	0	: 0	2	: 0	0
Nezperce	: 3	2	: 0	0	: 2	2	: 1	0	: 0	0
Total	: 6	8	: 1	0	: 2	2	: 3	3	: 0	3

Though there has been a slight increase in the number of infested areas reported, none were considered as being at all serious. The existing infestations of this insect are reported as consisting of a few scattered trees, which is the usual condition encountered in all ponderosa pine stands of this region. On the Lolo small outbreaks on Cayuse Hill and at the Old Frenchtown ranger station were reported as developing from slashings. The description and source of these spot killings would indicate that the Oregon engraver beetle (*Ips oregoni*) rather than the western pine beetle was responsible for the destruction.

TABLE VIII
DOUGLAS FIR BEETLE INFESTATION
DOUGLAS FIR

Forest	: No. of		: Number of infestations							
	: reports		: Increasing		: Decreasing		: Normal		: Stopped	
	: 1936-1937		: 1936-1937		: 1936-1937		: 1936-1937		: 1936-1937	
Absaroka	: 1	2	: 0	0	: 0	0	: 1	1	: 0	1
Bitterroot	: 0	1	: 0	0	: 0	0	: 0	1	: 0	0
Cabinet	: 1	0	: 0	0	: 1	0	: 0	0	: 0	0
Flathead	: 5	6	: 0	0	: 5	3	: 0	3	: 0	0
Gallatin	: 1	2	: 0	1	: 1	0	: 0	1	: 0	0
Helena	: 1	0	: 0	0	: 0	0	: 1	0	: 0	0
Kootenai	: 2	3	: 0	0	: 1	1	: 1	2	: 0	0
Lolo	: 1	0	: 0	0	: 1	0	: 0	0	: 0	0
Nezperce	: 0	1	: 0	0	: 0	0	: 0	1	: 0	0
St. Joe	: 0	1	: 0	1	: 0	0	: 0	0	: 0	0
Total	: 12	16	: 0	2	: 9	4	: 3	9	: 0	1

Though the preceding tabulation shows an increase in the number of Douglas fir beetle infestations reported during the past season, only 2 of the 16 situations were considered as increasing. During the past

decade this insect has been responsible for the destruction of large volumes of Douglas fir within the Northern Rocky Mountains, which has varied from a fairly large percentage of the timber stand in question to small, scattered spots of infestation. Though the situations are not considered as serious, it is believed that the losses of Douglas fir are perhaps more serious than anticipated.

The most serious situations exist on the Flathead, Gallatin, and Helena National Forests, where a rather general infestation is scattered throughout the Douglas fir stands.

ENGELMANN SPRUCE BEETLE INFESTATIONS ENGELMANN SPRUCE

This is the first year since the institution of these annual reports that outbreaks of the Engelmann spruce beetle have been recorded. The existence of a severe epidemic of this insect in the spruce stands of the Yellowstone National Park prompted a letter to all Forest Supervisors calling attention to this situation and requesting that in the preparation of the annual insect status reports careful consideration be given to all spruce areas. That adequate attention was given to this request is evidenced by the number of reports depicting a condition within the region which may prove quite serious.

TABLE IX
ENGELMANN SPRUCE BEETLE INFESTATIONS
IN SPRUCE

Forest	: Number of : reports	: Character of infestations reported			
		: Increasing	: Decreasing	: Normal	
Custer	: 1	:	:	:	1
Deerlodge	: 1	:	: 1	:	
Gallatin	: 2	: 1	: 1	:	
St. Joe	: 1	:	:	:	1

The Custer Forest reports an area of 10 acres on which all of the spruce has been dead for two years, but with no new attacks occurring. As the foliage falls very quickly from newly attacked trees, it is possible that the 1937 attack could have been missed. The Deerlodge reports an infestation of 1,200 acres on which a large percentage of the spruce stand has been killed. The Gallatin reports an area with a severe old kill. Data secured by an officer of this laboratory show the presence of severe infestations of this insect in the Gallatin Forest near the northwest corner of the Yellowstone Park. Increasing infestations are reported from the St. Joe National Forest along the south side of the St. Joe River on Fishhook and Sisters Creeks and from the Pinkham Creek drainage on the Kootenai. In addition to these four forests, eleven negative reports

were received from the Absaroka, Beaverhead, Custer, Deerlodge, Lewis and Clark, and Nezperce National Forests. All spruce areas should be kept under careful observation during the next few years if the early stages of outbreaks are to be recorded.

HEMLOCK LOOPER
(Ellopia fiscellaria lugubrosa Hlst.)

The most spectacular forest insect epidemic of the year was the occurrence of the hemlock looper, or a variety of this species, throughout the white fir stands of northern Idaho and western Montana. Seventeen areas varying from a few to many thousand acres in extent were reported from the Cabinet, Clearwater, Flathead, Kootenai, Lolo, and St. Joe National Forests. There are also eight areas of severe infestation on the Coeur d'Alene, six on the Kaniksu, and one in the Glacier National Park.

Though this is the first record available of an outbreak within the Inland Empire, the hemlock looper has been known as a destructive forest insect on the Pacific Coast for many years. In 1936 large numbers of the adult moths were observed throughout the forests of northern Idaho; however, the defoliation which occurred prior to their appearance was not sufficiently severe to attract attention. Early in July 1937 the foliage of white fir and all associated species of trees and shrubs in numerous areas turned brown as a result of the injury to the needles by feeding caterpillars. Later in the season myriads of adult moths were to be seen flying through the woods or resting upon bushes or trunks of trees.

The future of this epidemic is difficult to foresee, as there are no data upon which predictions can be made. However, on the Pacific Coast tremendous quantities of commercial timber have been destroyed during outbreaks of the hemlock looper. This insect is believed to be indigenous to this region, and it is also believed that its natural enemies will soon reestablish a proper biological balance, though it is recognized that severe losses of timber may occur before this is accomplished.

SPRUCE BUDWORM
(Cacoecia fumiferana Clem.)

Spruce budworm infestations were again recorded from the Absaroka (1), Helena (1), and Nezperce (3) Forests. One new situation was reported from the Nezperce, though it is not considered as a new outbreak. None of the infestations reported are considered as serious, and it is evident that there is a gradual but constant decline in the severity of the budworm epidemic throughout the region which reached its peak in 1928, with a total infested area of 789,000 acres.

LARCH SAWFLY
(Lygaeonematus erichsonii Konow)

The first western record of this destructive insect pest of eastern larch came from the Flathead National Forest in 1934. At the present time there are a few small spots of infestation along the north fork of the Flathead River which are apparently decreasing in severity.

TUSSOCK MOTH
(Hemerocampa pseudotsuga McD)

An outbreak of what is assumed to be the Douglas fir tussock moth was reported from the Bitterroot National Forest. There is also an epidemic of this insect on the Sawtooth National Forest in southern Idaho, where in 1937 two species of eastern parasites were liberated in the hope of establishing them in the western United States.

MISCELLANEOUS INSECTS

Of the miscellaneous insects included in the ranger reports there are only a few which are of sufficient economic importance to warrant discussion.

Tip moth (Rhyacionia sp.) infestations on the Custer Forest are considered as decreasing in severity. Large quantities of white fir are being killed by the white fir engraver (Scolytus ventralis Lec.), and Alpine fir is being killed by Dryocoetes confusus. There were several local outbreaks of the Oregon engraver beetle (Ips oregoni) throughout the region, the most outstanding being in the ponderosa pine stands of the Rocky Boy Indian Reservation. Cone and seed insects, the white pine aphid, and the spruce gall aphid have been responsible for some damage.

GLACIER NATIONAL PARK

An Annual Insect Report of the Glacier National Park submitted by John F. Aiton, Ranger Forester, indicates a satisfactory status of forest insect conditions within the park. Mr. Aiton's report is based upon a very thorough survey conducted by district rangers.

Though, as stated, the present status of conditions is satisfactory, there are several situations which will warrant careful surveillance during the next few years. The most important of these is the Douglas fir beetle infestation in the fire-scorched trees of the 1936 Heaven's Peak fire. The danger of this situation rests in the possibility of the infestation developing to a magnitude which will endanger the adjacent uninjured timber stands. Mr. Aiton comments on this situation as follows:

"In addition to the above survey there remains the problem of the burn resulting from the 1936 Heaven's Peak fire. The area of the burn in the McDonald District incorporates numerous Douglas fir trees infested with Dendroctonus pseudotsuga. This area was visited by James C. Evenden, Entomologist, and L. F. Cook, Deputy Chief Forester, late last summer. It was decided to postpone control measures in this area for another year. Careful observation will be maintained relating to the future status of this problem."

In the St. Marys area along the Logan Pass highway trees of all species have been dying from rather intangible causes. Though bark beetles are found in some of these trees, they are usually secondary species and are not considered as the primary agency of destruction. It is believed that a proper explanation would rest in the disturbed ecological conditions resulting from deficient moisture and factors associated with highway construction.

The rather constant loss of Alpine fir continues as in the past. This condition can hardly be avoided, as it would seem to be a natural elimination of old, decadent trees. The loss of these trees is not serious from the standpoint of forest cover, as an adequate understory of small trees is present.

There are scattered attacks of the Douglas fir beetle throughout the west side of the park. This condition exists throughout the Northern Rocky Mountains, and unless localized centers of severe infestation develop, control measures are not considered necessary.

An outbreak of a defoliating insect which will no doubt prove to be the "hemlock looper" (Ellopia fiscellaria lugubrosa) was reported from the Nyack district.

Though the 1937 survey did not reveal any alarming forest insect situations within the Glacier Park, it is trusted that the project can be repeated each season. It is only from such survey data that destructive outbreaks of forest insects can be detected in their early stages, permitting the prompt institution of control for the prevention of excessive losses.

YELLOWSTONE NATIONAL PARK

The Annual Insect Report of the Yellowstone National Park prepared by George A. Walker, Ranger Forester, again presents a clear depiction of forest insect conditions within that area. Though no survey of the park was conducted during the past season, aside from some specific areas of infestation, a very accurate knowledge of the general situation is available. Mr. Walker discusses a number of situations, the most important of which are as follows:

Engelmann Spruce Beetle

During the past few years the Engelmann spruce beetle has destroyed a large percentage of the spruce stands within the northwestern portion of the park. Though it is believed that during the life of this epidemic nearly all trees above 10 inches in diameter will be killed, the seriousness of the devastation is lessened somewhat by the splendid understory of young trees, which assures an adequate forest cover.

Douglas Fir Beetle

During the winter of 1935-1936 Douglas fir trees around Mammoth were severely injured by some unseasonal climatic condition. Though some trees have died as a direct result of this injury, most of them are recovering. During the past season a light infestation of the Douglas fir beetle developed in this area of weakened trees. As it was feared that if this infestation was allowed to develop to its maximum destructiveness not only would trees be killed that would otherwise recover from the climatic injury, but the losses would extend into uninjured scenic timber stands adjacent, control measures were instituted during October for the treatment of all infested trees.

Secondary Insects

Mr. Walker discusses the Oregon engraver beetle (Ips oregoni) and Pityogenes knechteli under this caption and states that these two secondary bark beetles continue to kill trees weakened by other factors along highways and utility areas. Though it is recognized that these insects are not the primary agency responsible for this destruction, they have been treated in the hope of reducing the beetle population and prolonging the lives of the weakened trees. Mr. Walker recommends that this practice be continued.

The killing of Alpine fir by Dryocoetes confusus continues, with no apparent change in the severity of the losses. Though light feeding by the lodgepole sawfly (Neodiprion burkei Midd.) was recorded in the West Yellowstone area in 1936, no evidence of the insect was observed during the past season. The needle tyer (Argyrotoenia pinatubana Kft.) is still present in the lodgepole pine stands at West Yellowstone, with little change in the severity of the infestation which has existed for the past few years.

GRAND TETON NATIONAL PARK

The present status of insect conditions within the Grand Teton National Park is well described in the Annual Forest Insect Report submitted by Chief Ranger Hanks. This report was based upon a survey of all timbered areas within the park conducted by two ECW foremen who had been previously trained in the technique of survey methods.

This report shows the mountain pine beetle infestation to be decreasing in all areas. In the Windy Point area south of park headquarters, where the heaviest losses have occurred, there has been a marked decrease in the severity of the outbreak. Sample strip data from this area in 1936 showed an average of 4.5 infested trees per acre, which decreased to 1.9 in 1937. It is trusted that this condition will persist and that remaining timber stands will be spared further devastation.

Destruction of Douglas fir presumably by the Douglas fir beetle was recorded near Bradley Lake, though no new attacks were observed. Dying Alpine fir within the Indian Paintbrush area was considered as quite serious, and an examination was requested with the idea of utilizing CCC enrollees in the institution of control if such action is considered feasible.

CONTROL PROJECTS--SEASON 1937

Forest Insect Survey

As a part of a plan for the development of an adequate system for detecting the early stages of bark-beetle epidemics, extensive surveys of the Kaniksu, Coeur d'Alene, and St. Joe National Forests of Region 1 and the Weiser Forest of Region 4 were conducted during the past season by the Bureau of Entomology and Plant Quarantine. As a result of these surveys, four "hot spots" of mountain pine beetle infestation in white pine were recorded on the Coeur d'Alene which warranted the prompt institution of control, and which otherwise would have escaped detection for at least another year, with increased losses and difficulties of control. Areas of potentially serious infestation were recorded on the other forests surveyed which, though not warranting the institution of control at this time, will be rechecked during the 1938 season to determine their status. Data from these surveys provide accurate information as to the status of existing conditions and prevent the unknown development of destructive epidemics. Other forests will be covered by additional surveys during the 1938 season.

Control Projects -- Kaniksu National Forest

The mountain pine beetle infestation in the white pine stands of the Smith Creek drainage recorded in the 1936 Ranger Reports was rechecked

early in the spring of 1937 and control measures instituted soon afterward. This infestation was of several years duration, and a large percentage of the timber had been destroyed prior to the institution of control. During this project some 377 infested white pine trees were treated, though due to the development of dangerous fire weather it was necessary to close the operation, leaving some 75 trees untreated.

Control Projects --- Coeur d'Alene National Forest

Control measures were instituted in October for the treatment of the four areas of severe infestation recorded by the 1937 survey. Two of these areas were adjacent to a CCC camp and enrollees, aided by trained spotting crews and foremen, were used in treating the infested trees. Approximately 2,000 trees have been treated, and the remaining 600 will be cared for during March and April. The other areas were in the Steamboat Creek drainage and inaccessible by roads, requiring the establishment of temporary pack camps. A total of 2,001 trees were treated at these two camps prior to the occurrence of bad weather, which required the cessation of the work. On all these projects the trees were cut into log lengths and peeled, as it is believed that the material can be salvaged during the coming season.

Control -- Shoshone National Forest

The seventh year of control against an outbreak of the Douglas fir beetle in the Douglas fir stands of the Gody Canyon, Shoshone National Forest, was again instituted in October and will continue through the present winter. This infestation is in timber stands weakened by spruce budworm defoliation, which has provided an unlimited supply of attractive host material for maintaining the bark-beetle population at an aggressive status. As the severity of this year's defoliation was less than during the previous season, it is hoped that the budworm epidemic has at last run its course, which will eliminate the weakened trees and make the results of bark-beetle control more effective. This project has been successful in protecting the scenic forests around the many resorts of this area and along the highway leading to the east entrance of the Yellowstone National Park.

SUMMARY

There are but few comments concerning the 1937 reports that are necessary. As previously stated, the officer's reaction to the situation being reported upon has added materially to the value of the information received, and it is trusted that future reports will contain even more detailed descriptions.

The Forest Insect Laboratory of the Bureau of Entomology and Plant Quarantine, Coeur d'Alene, Idaho, desires to be of every possible assistance to all land-managing agencies in the solution of their forest insect problems.